of the Old Testament with those of the Assyrian monuments. Other astronomical works are:—"Die astronomischen Angaben der assyrischen Keilinschriften" (Band xci., *Kais. Akad. der Wissensch.*, 1885), "Un Annuaire astronomique babylonien utilisé par Ptolémée (*Journ. As.*, 1890), "Les Éclipses mentionnées dans les Textes cunéiformes" (*Zeitschr. für Assyr.*, 1897), and many others of less importance. One of his last works was a contribution to chronology, entiled "L'Année de Meton" (*Rev. des Études grecques*, 1903). In his early days he had been a great champion of the genuineness of cuneiform decipherment, when its opponents counted among their ranks such great men as Renan and many others. He was one of the historic four who, at the invitation of the sceptics, produced a translation of the cylinder of Tiglath-Pileser I., which was read at a meeting of the Royal Asiatic Society by the president, and found to be substantially the same as the translations of Rawlinson, Hincks, and Fox Talbot, all of whom had bound themselves over not to collaborate or communicate with one another.

NOTES.

At the time of going to press, no message had been received from Sir Norman Lockyer as to the eclipse observations at Palma. The following telegram from the Astronomer Royal had, however, reached the Royal Society:—"Eclipse satisfactorily observed, but partially cloudy. Photographs with all instruments."

Prof. Ronald Ross informs us that the announcement to the effect that he has proceeded to New Orleans with Prof. Rubert Boyce, in connection with the outbreak of yellow fever there, is without foundation.

The sixteenth annual general meeting of the Institution of Mining Engineers will be held at Manchester on September 13–16. The following papers will be read, or taken as read:—Leading features of the Lancashire coalfield extended: J. Dickinson; up-to-date electrical power distribution: R. L. Gamlen; can explosions in coal-mines, with their associated toxic fatalities, be prevented? B. H. Thwaite; earth in collieries, with special reference to the recently issued departmental rules: S. F. Walker; the value of mollusca in Coal-measure stratigraphy: J. T. Stobbs.

The Local Government Board has issued a circular to borough councils and other local authorities respecting cerebro-spinal or "spotted" fever. This disease has recently been somewhat prevalent in Central Europe and in America, but the Board expresses the opinion that there has been no increase of the disease in England. For the guidance of local authorities the chief features of the disease are detailed, and, should an outbreak occur, the Board is prepared to advise the authority respecting it and to sanction notification.

During the past week the weather over the British Islands has been very unsettled; on Thursday last, heavy rain set in over many parts of Ireland, and continued almost without interruption for about thirty-four hours. The amounts measured during this period were 4·17 inches at Greystones, 4·33 inches at Dublin, 4·71 inches at Dundrum, and 5·09 inches at Bray, causing disastrous floods in various parts of that country. At Little Bray, the inmates of the lower-lying houses had to be rescued by boats. Sharp thunderstorms occurred in London and other parts on Sunday, Monday, and Tuesday, causing much damage to property. At Leigh, in the neighbourhood of Tonbridge, the trunk of an oak tree was torn in half, and a man who was seeking shelter under it was killed. During this period, rainfall has been considerable in all parts of the British Islands; in the twenty-four hours ending at 8h. a.m. on Tuesday, August 29, the amounts at Oxford and Yarmouth exceeded an inch, and an inch and a half was measured in the neighbourhood of London.

The programme of the Iron and Steel Institute for the meeting to be held at Sheffield on September 26–29 includes the following list of papers:—Wear of steel rails on bridges: T. Andrews, F.R.S.; metallurgical department of Sheffield University: Prof. J. O. Arnold; thermal transformation of carbon steels: Prof. J. O. Arnold and A. McWilliam; nature of troostite: Dr. Carl Benedicks; occurrence of copper, cobalt, and nickel in American pig-irons: Prof. E. D. Campbell; transformations of nickel steels: L. Dumas; on steel for motor-car construction, and on vanadium steels: L. Guillet; presence of greenish-coloured markings in the fractured surface of test pieces: Captain H. G. Howorth; over-heated steel: A. W. Richards and J. E. Stead, F.R.S.; segregation in steel ingots: B. Talbot; manipulator for steel bars: D. Upton; influence of carbon on nickel and iron: G. B. Waterhouse.

Attention is directed by the *Engineering and Mining Journal* of New York to a new development in mining which has not been generally noticed, namely, the working of alluvial tin deposits by dredging in the same manner as that followed in the case of gold-bearing gravel. In New South Wales the dredging for tin ore has become an established practice. In 1904 there were seven dredges in operation, which obtained 319 tons of tin ore, valued at 26,000*l*. The successful development of this practice in New South Wales suggests that it might possibly be applied with advantage in the Straits Settlements and elsewhere.

In a paper read before the Geological Society of America, Mr. George P. Merrill described a large block of massive serpentine traversed by veins of so-called asbestos from Thetford, Canada, now exhibited at the United States National Museum at Washington. Incidentally discussing the origin of the veins, he suggested that the vein cavities are shrinkage cracks filled by a process of crystallisation extending inward from either wall, and compared the veins to the shrinkage cracks formed in septarian nodules of clay ironstone, and their filling with fibrous material to the crystallisation of fibrous gypsum in limestone.

An ordinance relating to lead works has just been issued by the German Imperial Chancellor. The employment of women and lads in dust chambers and flues and in the transport of the dust is prohibited. The workmen employed at the furnaces may not work more than eight hours a day. The same rule applies to the workmen working inside cold furnaces or engaged in cleaning dust chambers and flues containing wet dust. Workmen engaged in cleaning dust chambers and flues containing dry dust are not permitted to work more than four hours a day inside such chambers and flues, and not more than eight hours a day in all. Food must not be taken to the working places. Working-suits, respirators, and gloves must be worn. Smoking cigars and cigarettes during work is forbidden. The rules will come into force on January 1, 1906.

The most important paper in the June issue of the *Proceedings of the Philadelphia Academy* is perhaps one by Mr. J. A. G. Rehn on the brown grasshoppers (Acridiidæ) of Costa Rica, in the course of which a number of new species are described. The collections examined included nearly three hundred specimens.

IT may be remembered that the remains of James Smithson, the founder of the Smithsonian Institution, who died in 1829 and was buried in the English cemetery on the heights of San Benigno, Italy, were removed to Washington last year and formally handed over to the Regents of the institution. The body, upon its arrival in Washington in January, 1904, was placed temporarily in a room in the Smithsonian building containing the relics of Smithson. While resting there, the remains were examined by medical experts and found to be in a remarkable state of preservation. Meanwhile a small mortuary chapel was prepared for them on the immediate left of the north entrance of the Smithsonian building, and on March 6, 1905, the remains were brought to this chapel and, in the presence of the Regents, replaced in the original tomb, shown in the illustration, which has been reproduced from the *Smithsonian Quarterly* (vol. xlviii.), where they will rest until Congress makes adequate provision for their fitting interment.

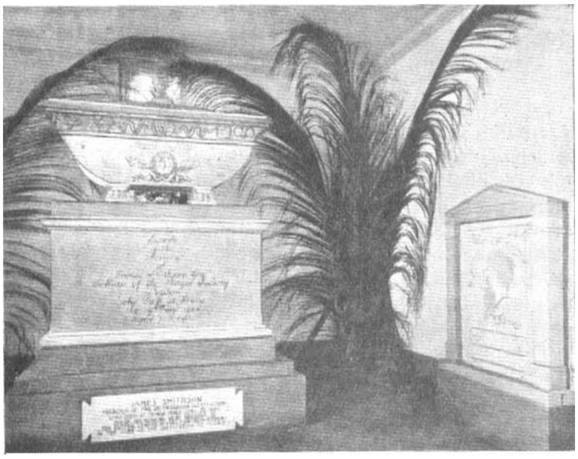

FIG. 1.—Interior of Smithson Mortuary Chapel, Smithsonian Institution.

IN *La Nature* of July 29 Prof. E. T. Hamy, the well known professor of anthropology at Paris, gives an account, illustrated by reproductions from photographs of the animal shortly after death, of a gigantic gorilla recently shot on the Sangha River, Congoland. It is said to have measured no less than 2 metres 30 cm. (7 feet 6¾ inches), and the height of the carcase in a sitting posture reached, as shown in the photograph, to the waist of a full-grown native. Prof. Hamy believes the specimen to indicate a new race, if not a new species, of gorilla.

FROM the report on the museums of the Brooklyn Institute of Arts and Sciences for 1904 we learn that special attention is being devoted to improving the installation of the children's museum. As first arranged, this part of the exhibition series was found to overlap in a considerable degree the ordinary collection, and steps were accordingly taken to do away with this duplication. Elimination, both from the museum and the illustrative lectures, of material not likely to interest children has also been undertaken, with the result that the collection has been entirely re-modelled, and is now as suitable for its present purpose as it can be made.

THE chief feature of the July issue of the *Emu* is formed by the plates, one of which gives a full-sized figure, from a photograph, of the New Calendonian kagu (*Rhinochaetus jubatus*), to which allusion has been made previously in these columns; while others (also from photographs) are devoted to the illustration of the parasitic habits of Australian cuckoos, which appear to be very similar to those of our own species. Of these three plates, one represents a young bronze-cuckoo (Chalcococcyx) ousting a blue wren (Malurus) from its rightful nest, the second a young fan-tailed cuckoo (Cacomantis) in a brown tit's (Acanthiza) nest, while the third shows a young bronze-cuckoo in the nest of a brown tit.

IN the *Zoologist* for August the editor commences a series of articles on the factors conducive to extermination of species, dealing in this instance with natural as distinguished from human agencies. Unfortunately the article is marred by several serious mistakes. We are told, for instance, that "the opossum" is the only non-Australian mammal, the cuscuses of Celebes and Cœnolestes of Brazil being ignored; while in the same sentence we are informed that monotremes are confined to New Zealand! Again, we are unaware what ground there is for the statement that fossil marsupials are known from Asia. Minor errors, such as nummulitids for nummulites, are also noticeable. In the same issue is a very interesting article by Mr. H. H. Patterson on the heronry at Reedham, Norfolk. In the case of a note on the occurrence of the lesser horse-shoe bat in Shropshire, the editor might have pointed out that Noctilio is not the generic title for these bats.

THE fourth volume of "The Museums Journal" (Dulau and Co.), edited by Mr. E. Howarth, covers the period from July 1, 1904, until June 30 of the present year, and contains the report of the council submitted at the Norwich Conference of 1904. Although now somewhat ancient history, that report records continued progress on the part of the association, both as regards membership and funds for permanent investment. It is also satisfactory to learn that the journal itself is becoming more and more widely appreciated, and consequently shows a constant tendency to increase in bulk. The museums directory, or list of the museums in the United Kingdom, is likewise proving larger than was anticipated, the volume just received continuing the list from London to Stalybridge inclusive, together with supplements. One of the difficulties which the editors experience is in getting local curators to send in the names and objects of the institutions under their charge. The attendance of delegates from foreign museums at the last two conferences is another satisfactory feature in connection with the progress of the association. Among features connected with progress in regard to museum work, attention may be directed to the adoption by the Museum of the Federated Malay States of the card-system for the registration of specimens.

MUCH interesting information with regard to animals in menageries and the evolution of museums on the other side of the Atlantic is conveyed in a pleasant style in the course of an illustrated article by Mr. E. S. Hallock published in the August number of the *Century Illustrated Monthly Magazine*. "The menagerie," writes the author, "developed along with the circus, but differed from the latter in being an animal-show pure and simple. . . . Some menageries were stationary, while others travelled from place to place in large vans." The "dimeexhibition" and the "curiosity-house" were devoted more to the exhibition of rare and interesting animals, monstrosities, &c., and from these, by the elimination of the "freak" element, are derived the modern American scientific museums. Reference is made to the camel exhibited in London in 1650, the Indian rhinoceros (described by Dr. Parsons) in 1685, and to Wombwell's unrecognised gorilla. Less well known is the case of the first great ant-eater exhibited in the London "Zoo," which was purchased about 1850 from two sailors, by whom it had been brought from Rio, for 300*l.*; and also that of a full-grown mandrill captured on board a slaver, and exhibited in Bristol in 1828, and later on in London. The most interesting record in the article is, however, the reference to a pair of South African giraffes imported into America in 1836, the same year in which the London gardens received their first representatives (of the northern race) of the species. In stating that the London establishment received its first representative of the southern form in 1895 the author makes a pardonable error, the fact being that the true southern race never has, so far as we know, been exhibited alive in this country.

THE most generally interesting feature in the report of the Indian Museum, Calcutta, for 1903–4 is the reference to a suggestion made by the director of the natural history branch of the British Museum that all the Indian type specimens might be transferred to the institution under his charge. The suggestion—which Major Alcock refers to in his section of the report as "most reasonable"—was largely based on the fact that the climate of Calcutta renders "types" as objects of reference almost useless, and that the interests of science would accordingly be advanced by their transference to the chief natural history centre of the British Empire. By the terms of their trust the trustees found themselves, however, unable to hand over the "types" formerly belonging to the Asiatic Society of Bengal, while they were disinclined to accede to the request as regards other "types" for fear of handicapping workers in India. Commenting upon this decision and its consequences, Major Alcock directs the attention of the Government of India to the administration of the museum, stating that the zoological staff is altogether inadequate. "An imperial museum of natural history," he writes, "such as the zoological section of the Indian Museum was designed to be, should be at once a complete and modern index of the fauna of the country, an object lesson in the more important general principles of zoology, an unfailing magazine of well-preserved material for research and distribution, and a centre where natural science is advanced by the discovery and publication of new facts. The facts that the Museum receives a grant for teaching-preparations from the local Government, and has decided that its 'types' must be kept on the spot for reference, indicate that this is the standard the Trustees wish realised. But grants of money and the possession of historic 'types' are not enough; equally essential are well-qualified paid assistants and reliable machinery for collecting new material and replenishing old."

A VERY interesting paper is contributed on the magic origin of Moorish designs to the *Journal of the Anthropological Institute* (July–December, 1904) by Dr. Westermarck. The magic consists entirely in the methods employed to ward off the evil eye, the fear of which is so potent in countries bordering the Mediterranean. The designs consist of hands, crosses, eyes, rosettes, squares, octagons, triangles, and innumerable conventional embroidery patterns; but they are all grouped round one central idea, the intention being to throw back the evil influence emanating from the eye, by some countercharm. This is usually done by stretching out the five fingers of the right hand, and Dr. Westermarck shows how all these various designs can be traced to some elaboration of fives, originally representing the five fingers, or of eyes, for if baneful energy can be transferred by the eye, it can obviously also be thrown back by the eye. Sixty-two illustrations of these counter-charms accompany the article.

IN the course of a note on the supply of water to leaves on a dead branch, printed as part ii. of vol. xi. of the *Scientific Proceedings of the Royal Dublin Society,* Prof. H. H. Dixon adduces evidence, based on experiment, to show that when a portion of a stem is killed by heat, the cells give off poisonous or plasmolysing substances; for some such reason it appears that leaves attached to a dead branch wither much more rapidly than leaves on a living twig. In the first part of the same volume Mr. J. Adams discusses the effect of very low temperatures on moist seeds.

MR. D. HOOPER has a historical and explanatory note on the ancient eastern medicine known as lycium or rusot in the *Journal of the Asiatic Society of Bengal* (vol. lxxiii., part ii., No. 4). The identity of rusot with the Indian lycium of the ancients was first pointed out by Dr. J. F. Royle, who found out that it is an inspissated extract prepared from the wood and roots of several species of Berberis. Mr. Hooper's analyses of four specimens indicate an amount of berberine varying from 3 per cent. to nearly 8 per cent. The dried stem of *Berberis aristata* is officinal in India, and a tincture is often recommended in the treatment of fever

IN the island of St. Vincent the Imperial Department of Agriculture for the West Indies controls an agricultural school and a land settlement scheme in addition to the botanic gardens. In the report for 1904–5 Mr. W. N. Sands, the agricultural superintendent, registers a distribution of nearly 30,000 plants, of which more than two-thirds were cacao, and, besides, smaller numbers of sisal bulblets, coffee, lime, and other economic plants. Many of these were distributed to allottees on the land settlement estates who cultivate cacao, canes, cassava, yams, and sweet potatoes. Mr. Sands, reviewing the progress of the cotton industry, has the satisfaction of recording that much of the sea-island cotton was the best produced under the auspices of the British Cotton Growing Association, and had realised seventeen pence per pound.

MR. W. E. COOKE, Government astronomer for Western Australia, has sent us a communication explaining a novel plan that he has adopted for giving more definiteness to the weather forecasts issued in that colony. Each forecast for a definite district is subdivided into specific items, to each of which a figure is attached, "1" representing that the occurrence prognosticated has only the barest possibility of being successful, and so on, up to "5," which indicates that the prediction may be relied upon with almost absolute certainty. Each item of the forecast has therefore a "weight" attached to it; on the whole, Mr. Cooke states that the new method has proved a distinct success, and that while people find that whenever the figure 5 appears the forecast is fulfilled in 99 cases out of 100, they do not feel so disappointed in case of failure when the lower numbers are attached, or as when, under the usual method, equal weight is attached to the whole forecast.

We have received the report of the Falmouth Observatory for the year 1904, reprinted from the seventy-second annual report of the Royal Cornwall Polytechnic Society. This observatory has for many years done excellent work in connection with meteorology and magnetism, as well as by the collection of sea-temperature observations at various places off the coast of Falmouth. The station has for many years been adopted by the Meteorological Office as one of its first-class observatories, and hourly observations or means have been regularly published in the official reports of that office. With regard to magnetism, the Falmouth Observatory has become additionally important, in consequence of the recording magnets at Kew and Greenwich being somewhat affected by the electric trams in those neighbourhoods.

Dr. Alberto Aggazzotti, writing in the *Atti dei Lincei*, xiv., (1), 12, describes some experiments conducted in the physiological laboratory at Turin on the effects of rarefaction on the respiration of the orang-utan. The animal on which the observations were made was brought from Borneo by Count Mario Peracca, who handed it over to Prof. Angelo Mosso for the investigation. It is described as being of good disposition and intelligent; at first it resisted the attempts to place it in the receiver, and tried to destroy the apparatus, but when it realised what was being done, it not only offered no further resistance, but even helped the experimenter in attaching the pneumograph and other necessary apparatus to it. A moderate rarefaction produced no injurious effects provided that the restoration of normal pressure was not effected too rapidly; at 450 millimetres of pressure the animal became more tranquil, at 300 millimetres it fell asleep, while at 270 millimetres it became seriously ill and fell down insensible. The respiration altered in character between 450 millimetres and 470 millimetres with an increase of frequency and a decrease of intensity, while at 300 millimetres it became irregular and spasmodic. These changes fairly well agree with those observed in other animals, particularly man.

Mr. C. Mosley has arranged an edition of White's "Selborne" for students, in which the whole of the letters are classified under subjects, giving the reader all that Gilbert White wrote on one topic under one head. As the subjects will be arranged alphabetically, the work will be one of reference as well as for reading consecutively. Mr. Elliot Stock is to publish the book during the coming season.

We have received a copy of the first fasciculus of vol. xxxv. of the *Mémoires de la Société de Physique et d'Histoire naturelle de Genève*. This part of the transactions contains, with other interesting papers, the president's report for 1904. Dr. Auguste Wartmann-Perrot successively passes in review the administrative events of the year, refers in eulogistic terms to the work of eminent members of the society deceased during the previous year, and recapitulates briefly the scientific subjects discussed in the meetings of the society during 1904. The biographical notices contained in the president's report include those of Charles Soret, renowned for his work in crystallography; of Albert Rilliet, the chemist; and of Wilhelm His, the anatomist. The scientific activity of the society is summarised concisely under subjects, and this part of the report will serve men of science as a full index of the work done by members of the Geneva Society during 1904. The president's statement is a useful account of a good year's work.

OUR ASTRONOMICAL COLUMN.

ASTRONOMICAL OCCURRENCES IN SEPTEMBER:—

Sept. 4.	Ceres in opposition to the Sun (Ceres mag. 7·4).
,, ,,	7h. 33m. to 8h. 37m. Moon occults γ Libræ (mag. 4·1).
,, 8.	10h. 20m. Minimum of Algol (β Persei).
,, 11.	12h. Moon in conjunction with Saturn (Saturn 1° 56′ S.).
,, 14.	12h. 42m. to 14h. 11m. Transit of Jupiter's Sat. III. (Ganymede).
,, 14.	23h. Mercury at greatest elongation, 17° 54′ W.
,, 15.	Venus. Illuminated portion of disc = 0·787, o. Mars = 0·851.
,, 17.	10h. 35m. to 11h. 36m. Moon occults μ Ceti (mag. 4·4).
,, 18.	9h. 54m. to 10h. 55m. Moon occults *f* Tauri (mag. 4·3).
,, 19.	10h. 36m. to 10h. 59m. Moon occults γ Tauri (mag. 3·9).
,, 19.	13h. 56m. to 14h. 37m. Moon occults 71 Tauri (mag. 4·6).
,, 19.	15h. 13m. to 16h. 36m. Moon occults θ^1 Tauri (mag. 3·9).
,, 19.	15h. 18m. to 16h. 31m. Moon occults θ^2 Tauri (mag. 3·6).
,, 19.	20h. 24m. to 21h. 1m. Moon occults α Tauri (mag. 1·1).
,, 20.	14h. Ceres 9′ N. of 89 Aquarii (mag. 4·9).
,, 21.	Saturn. Major axis of ring = 43″·30, Minor axis = 8″·36.
,, 19.	14h. Moon in conjunction with Jupiter (Jupiter 4° 16′ N.).
,, 28.	12h. 3m. Minimum of Algol (β Persei).

Observations of Planets.—The results of a number of recent observations of Saturn and Jupiter are recorded by Mr. Denning in the *Observatory* for August. Using the 12½-inch Calver reflector, some excellent observations of Saturn were obtained during the morning twilight in June and July. The region north of the multiple belt in the northern hemisphere was seen to be the brightest part of the planet—not the equatorial zone, as previously. A small white spot was detected on the N. edge of the great belt on July 6, and estimated to be central at 13h. 40m. A small white spot was seen in the N. temperate zone on the following dates in the positions and at the times stated:—

	Transit time h. m.	Long. System II. °
July 13	13 20	72·7
,, 16	15 35	67·3
,, 21	12 35	69·5

Observing the Great Red Spot on Jupiter on June 24 and July 6, Mr. Denning found it to be central at 15h. 43m. and 15h. 40m. respectively, the corresponding longitudes being 25°·1 and 24°·8. Comparing these longitudes with those published in the April *Observatory*, it is seen that during the period that Jupiter has been too near to the sun to be observable, the motion has conformed precisely with system ii. of the ephemerides based on a rotation period of 9h. 55m. 40·63s. An observation made by the Rev. T. E. R. Phillips confirms the above observation of July 6.

Proper Motions of the Hyades.—A discussion of the proper motions of the Hyades group is the *raison d'être* of No. 14 of the Publications of the Astronomical Laboratory at Groningen. The plates from which the proper motions were derived were obtained by Prof. Donner at Helsingfors and discussed by Profs. Kapteyn and W de Sitter.

In the introduction to the volume Prof. Kapteyn gives a most interesting discussion of the results obtained by his method of determining proper motions, the method employed in the present case, in which a plate is exposed on a certain area and then packed away for a number of years, exposed again on the same area, and then developed and measured. One of the gravest objections to this method was the fear that the plates would deteriorate during the interval between the two exposures, but Prof. Kapteyn disposes of this objection by stating that not a